



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/716,724

11/19/2003

Richard N. Codos

LPPT-13E

6316

7590

09/13/2006

WOOD, HERRON & EVANS, L.L.P.

2700 Carew Tower

441 Vine St.

Cincinnati, OH 45202

EXAMINER

TRAN, LY T

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 09/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/716,724

Applicant(s)

CODOS, RICHARD N.

Examiner

Ly T. TRAN

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,4,7,18,19,28,33,35,36 and 42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,4,7,18,19,28,33,35,36,42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipate by Tokunaga et al (JP 01075249).

With respect to claims 3 and 4, Tokunaga discloses a method of printing on a substrate comprising: moving a head carriage (fig.4, 5: element 3, 6), having at least one ink jet nozzle thereon, parallel to a plane in which is support a substrate (fig.3 4: element 1), adjust the distance and jetting ink on the surface of the substrate (abstract), jetting ink from the nozzle across the predetermined distance onto the surface of the substrate (fig.3, 4), the sensing of the position is carried out while moving the print head carriage and adjusting including varying the position of the nozzle relative to the plane as the print head carriage moves so as to maintain the predetermined distance across the substrate in response to the sensed distance (abstract).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2853

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tokunaga et al (JP 01075249) in view of Fassler et al. (USPN 5,910,813).

With respect to claim 7, Tokunaga discloses a method of printing on a substrate comprising: moving a head carriage (fig.4, 5: element 3, 6), having at least one ink jet nozzle thereon, parallel to a plane in which is support a substrate (fig.3 4: element 1), adjust the distance and jetting ink on the surface of the substrate (abstract), jetting ink from the nozzle across the predetermined distance onto the surface of the substrate (fig.3, 4), the sensing of the position is carried out while moving the print head carriage and adjusting including varying the position of the nozzle relative to the plane as the print head carriage moves so as to maintain the predetermined distance across the substrate in response to the sensed distance (abstract).

However, Tokunaga fails to teach non-flexible substrate.

Fassler shows that flexible and rigid substrate is an equivalent structure known in the art. Therefore, because flexible and rigid were art recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute rigid substrate for flexible substrate.

3. Claims 33 and 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tokunaga et al (JP 01075249) in view of Cumming (USPN 5,980,011) and Stellmach (USPN 5,172,987)

Tokunaga discloses a method of printing on a substrate comprising: moving a head carriage (fig.4, 5: element 3, 6), having at least one ink jet nozzle thereon, parallel to a plane in which is support a substrate (fig.3 4: element 1), adjust the distance and jetting ink on the surface of the substrate (abstract), jetting ink from the nozzle across the predetermined distance onto the surface of the substrate (fig.3, 4), the sensing of the position is carried out while moving the print head carriage and adjusting including varying the position of the nozzle relative to the plane as the print head carriage moves so as to maintain the predetermined distance across the substrate in response to the sensed distance, transmitting of the information from a sensor to the carriage, signals instructing the motor to adjust the position of the head (abstract).

Tokunaga fails to teach a multiplicity of print heads and two sensors are mounted on the carriage.

Cumming teaches the multiple heads (Column 8: line 44-45)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide multiple heads as taught by Cumming. The motivation of doing so is to increase speed and resolution.

Stellmach teaches two sensors are mounted on the carriage and the sensor includes an indicator roller (Column 6: line 59-62, Column 6: line 3-9) roller and the heads transversely on the carriage relative to the substrate Column 9: line 60-65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a roller sensor as taught by Stellmach. The motivation of doing so is to jolting the print head.

4. Claims 18, 28 and 35, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokunaga et al (JP 01075249) in view of Cumming (USPN 5,980,011).

Tokunaga discloses a method of printing on a substrate comprising: moving a head carriage (fig.4, 5: element 3, 6), having at least one ink jet nozzle thereon, parallel to a plane in which is support a substrate (fig.3 4: element 1), adjust the distance and jetting ink on the surface of the substrate (abstract), jetting ink from the nozzle across the predetermined distance onto the surface of the substrate (fig.3, 4), the sensing of the position is carried out while moving the print head carriage and adjusting including varying the position of the nozzle relative to the plane as the print head carriage moves so as to maintain the predetermined distance across the substrate in response to the sensed distance, transmitting of the information from a sensor to the carriage, signals instructing the motor to adjust the position of the head (abstract).

Tokunaga fails to teach a multiplicity of print heads and two sensors are mounted on the carriage.

Cumming teaches the multiple heads (Column 8: line 44-45)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide multiple heads as taught by Cumming. The motivation of doing so is to increase speed and resolution.

Response to Arguments

5. Applicant's arguments with respect to the previous rejection have been considered but are moot in view of the new ground(s) of rejection.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ly T. TRAN whose telephone number is 571-272-2155. The examiner can normally be reached on M-F (7:30am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LT

Sept. 6, 2006


STEPHEN MEIER
SUPERVISORY PATENT EXAMINER